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10/573,729

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Bernhard Gleich

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
595 MINER ROAD
CLEVELAND, OH 44143

EXAMINER

VARGAS, DIXOMARA

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/573,729 | Applicant(s) GLEICH ET AL. | |
| | Examiner DIXOMARA VARGAS | Art Unit 2831 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 11-13 is/are rejected.
- 7) ☒ Claim(s) 7-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5 and 11-13 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claim 1 and 11 fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in the reply filed 04/03/08. In that paper, applicant has stated that the transmission line used in an MR system as an antenna for transmitting or receiving MR signals, and this statement indicates that the invention is different from what is defined in the claim(s) because the claim language in the body of the claim requires only a cable. According to the arguments it is essential that said cable it is used as an RF antenna in an MR system for transmitting or receiving MR signals as opposed to a connecting cable so that said cable needs to have specific properties and materials used in order to operate properly and without interference in the MR system. However, the claim language in the body of the claim fails to indicate that said cable is a transmission line antenna used for transmitting or receiving MR signals and how is the transmission cable structurally related to the MR system in order to operate adequately as desired.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Keilman et al. (US 6,231,516 B1).

With respect to claim 1, Keilman discloses a transmission cable, for use in a magnetic resonance apparatus, the transmission cable comprising (Figures 19A-19D): a plurality of cable segments (RF coil #223 A having two ends wherein the two ends are considered to be segments of the RF coil); and a plurality of electroacoustic couplers for providing electrical connection between segments (ultrasonic and electrical transducer sensor circuit #220 coupling the RF segments or ends of RF coil #223 A indirectly through the cables #225 and #226).

5. With respect to claim 11, Keilman discloses a transmission cable for use in a magnetic resonance apparatus, the transmission cable comprising (Figures 19A-19D): a plurality of cable segments (RF coil #223 composed of multiple wires #223A wherein said multiple wires have two ends which constitutes the cable segments); and a plurality of couplers each of which transforms a first signal carried by a first cable segment into an acoustic signal and from the acoustic signal into a second signal carried by a second cable segment (ultrasonic and electrical transducer sensor #220 acting as the coupling system of the RF coil #223 composed of multiple wires connected to it).

Claim Rejections - 35 USC § 103

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vitek et al. (US 6735461 B2) in view of Keilman et al. (US 6,231,516 B1).

With respect to claim 6, Vitek discloses an MR apparatus comprising (as shown in Figure 1): a first magnet system for generating a main magnetic field in an examination region (#52); and an RF coil disposed in the examination region for transmitting and/or receiving RF signals to and/or from the examination region (Column 6, lines 7-26).

Also, Vitek discloses the claimed invention as stated above except for specifying the type of RF coil or the configuration for said RF coil including a plurality of transmission cables for carrying signals with the system, at least one of the transmission cables comprising a plurality of cable segments and a plurality of electroacoustic couplers for coupling adjacent cable segments. However, Keilman discloses an RF coil system capable of being used in a magnetic system with a static field wherein said RF coil has a plurality of transmission cables for carrying signals (Column 28, lines 6-18, wherein it is disclosed that the RF coil #223 is composed of wires

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#223A as shown in Figure 19D and said wires are considered to be the claimed plurality of transmission cables), at least one of the transmission cables comprising a plurality of cable segments (RF coil having multiple wires #223A wherein said multiple wires have two ends each which constitutes segments of the cable) and a plurality of electroacoustic couplers for coupling adjacent cable segments (ultrasonic and electrical transducer sensor #220 coupling the wire ends through the cables #225, see Figures 19A-19D). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a configuration for said RF coil including a plurality of transmission cables for carrying signals with the system, at least one of the transmission cables comprising a plurality of cable segments and a plurality of electroacoustic couplers for coupling adjacent cable segments as taught by Keilman with Vitek's MR apparatus since it would have been obvious to one of ordinary skill in the art at the time the invention was made for the purpose of diagnosing and providing treatment to a patient.

Allowable Subject Matter

8. Claims 1-5 and 11-13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
9. Claims 2-5, 7-10, 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter:

a. With respect to claim 2, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a transmission cable for use in a MRI apparatus, the transmission cable comprising a first mixer disposed at a first end of the cable for shifting a signal frequency associated with the electroacoustic couplers in combination with the remaining limitations of the claim 1 above.

b. With respect to claim 3, the claim has been found allowable due to its dependency on claim 2 above.

c. With respect to claim 4, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a transmission cable for use in a MRI apparatus, the transmission cable comprising each cable segment comprises a first conductor and a second conductor and each of the first and second conductors is connected to at least one electroacoustic coupler in combination with the remaining limitations of the claim 1 above.

d. With respect to claim 5, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a transmission cable for use in a MRI apparatus, the transmission cable comprising a transducer structure wherein each electroacoustic coupler comprises: a substrate; a first set of conductive fingers disposed on the substrate; and a second set of conductive fingers disposed on the substrate whereby an acoustic signal is passed from the first set of conductive fingers to the second set of conductive fingers in combination with the remaining limitations of the claim 1 above.

e. With respect to claim 7, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest an MRI apparatus comprising a first mixer disposed at a first end of the cable for shifting a signal frequency associated with the electroacoustic couplers in combination with the remaining limitations of the claim 6 above.

f. With respect to claim 8, the claim has been found allowable due to its dependency on claim 7 above.

g. With respect to claim 9, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest an MRI apparatus comprising each cable segment comprising a first conductor and a second conductor and each of the first and second conductors is connected to at least one electroacoustic coupler in combination with the remaining limitations of the claim 6 above.

h. With respect to claim 10, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest an MRI apparatus comprising a transducer structure wherein each electroacoustic coupler comprises: a substrate; a first set of conductive fingers disposed on the substrate; and a second set of conductive fingers disposed on the substrate whereby an acoustic signal is passed from the first set of conductive fingers to the second set of conductive fingers in combination with the remaining limitations of the claim 6 above.

i. With respect to claim 12, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a transmission cable for use in a MRI apparatus, the transmission cable comprising each coupler having a high

impedance for a common mode wave on the cable in combination with the remaining limitations of the claim 11 above.

j. With respect to claim 13, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a transmission cable for use in a MRI apparatus, the transmission cable comprising the cable having a first end and a second end, wherein a mixer is disposed at each of the first and second ends for shifting a frequency of a signal transmitted by the cable in combination with the remaining limitations of the claim 11 above.

Response to Arguments

11. Applicant's arguments filed 04/03/08 have been fully considered but they are not persuasive.

12. Applicant's arguments with respect to claim 6 have been considered but are moot in view of the new ground(s) of rejection.

13. Applicant argues that Keilman fails to teach or fairly suggest a plurality of segments and instead it discloses a continuous loop with two ends.

14. The examiner disagrees with applicant arguments because the claim language calls for "a plurality of segments" which it is not necessary limited exclusively to independent components. Therefore, the recitation could be interpreted as merely parts of one component. Applicant is reminded that if applicant meant multiple independent/different components, the claim language fails to provide said feature and the examiner is entitled to the broadest interpretation possible.

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15. Applicant argues that Keilman fails to teach or fairly suggest a transmission cable for use in a MRI apparatus.

16. In response to applicant's arguments, regarding claims 1 and 11 the recitation "a transmission cable for use in a MRI apparatus" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Regarding claim 6,

17. Applicant argues that Keilman fails to teach or fairly suggest couplers for providing electrical connection between segments.

18. The examiner disagrees with applicant's argument because the claim language only requires couplers for connecting at least two segments wherein those to segments are not restricted to independent/different components. Therefore, it could be interpreted as an element to electrically connect directly or indirectly two ends of a component. Applicant is reminded that if applicant meant multiple independent/different components coupled through couplers, the claim language fails to provide said feature and the examiner is entitled to the broadest interpretation possible. Additionally, applicant is reminded that the claim segments are not limited to be only transmission cable segments for use in a MRI apparatus since said recitation occurs only in the preamble of the claim and said segments are a structural limitation able to stand alone. The segments in the body of the claim are not depending directly to said

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transmission line on the preamble of the claim. Therefore, the preamble has no patentable weight. Also, regarding the claim limitation reciting " for use in a MRI apparatus", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. For the reasons stated above, the 35 U.S.C. 102(b) is maintained and considered proper.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIXOMARA VARGAS whose telephone number is (571)272-2252. The examiner can normally be reached on Monday to Thursday from 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dixomara Vargas/
Patent Examiner,
Art Unit 2831